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Application Number	10/659,169
Filing Date	September 10, 2003
First Named Inventor	Lin Wang
Group Art Unit	1713
Examiner Name	Roberto Rabago
Attorney Docket Number	CL1518 US CNT

Total Number of Pages in This Submission

ENCLOSURES (check all that apply)

☒ Fee Transmittal Form

☐ Fee Attached

☐ Amendment / Response

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☐ Affidavits/declaration(s)

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Parts under 37 CFR
1.52 or 1.53

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Rakesh Mehta, Registration No. 50,224

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Rakesh H. Mehta

Date

February 12, 2007

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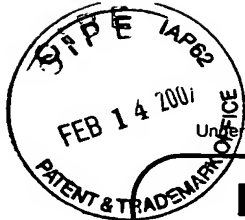
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FEE TRANSMITTAL for FY 2007

Patent fees are subject to annual revision.

☐ Applicant Claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 500.00

Complete if Known

Application Number	10/659,169
Filing Date	September 10, 2003
First Named Inventor	Lin Wang
Examiner Name	Roberto Rabago
Group / Art Unit	1713
Attorney Docket No.	CL1518 US CNT

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FEE CALCULATION

1. BASIC FILING FEE

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101	1000	201	500	Utility filing fee	
106	430	206	215	Design filing fee	
107	660	207	330	Plant filing fee	
108	1400	208	700	Reissue filing fee	
114	200	214	100	Provisional filing fee	

SUBTOTAL (1)

(\$)

2. EXTRA CLAIM FEES

Total Claims -20 = 0 X 50 =

Independent Claims -3 = 0 X 200 =

Multiple Dependent ☐ X 360 =

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
103	50	203	25	Claims in excess of 20
102	200	202	100	Independent claims in excess of 3
104	360	204	180	Multiple dependent claim, if not paid
109	200	209	100	** Reissue independent claims over original patent
110	50	210	25	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2)

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FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
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105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	120	215	60	Extension for reply within first month	
116	450	216	225	Extension for reply within second month	
117	1020	217	510	Extension for reply within third month	
118	1,590	218	795	Extension for reply within fourth month	
128	2,160	228	1,080	Extension for reply within fifth month	
119	500	219	250	Notice of Appeal	
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121	1000	221	500	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	500	240	250	Petition to revive - unavoidable	
141	1,500	241	750	Petition to revive - unintentional	
142	1,400	242	700	Utility issue fee (or reissue)	
143	800	243	400	Design issue fee	
144	100	244	550	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	790	246	395	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	790	249	395	For each additional invention to be examined (37 CFR § 1.129(b))	
179	790	279	395	Request for Continued Examination (RCE)	
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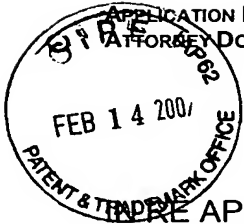
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SUBMITTED BY

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Signature				Date	February 12, 2007

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APPLICATION No.: 10/659,169
ATTORNEY DOCKET No.: CL1518 US CNT

PATENT
GROUP ART UNIT 1713

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:
LIN WANG, ET AL.

APPLICATION NO.:
10/659,169

FILED:
SEPTEMBER 10, 2003

FOR:
MANUFACTURE OF POLYETHYLENES

GROUP ART UNIT:
1713

EXAMINER:
ROBERTO RABAGO

ATTORNEY DOCKET NO.:
CL1518 US CNT

APPEAL BRIEF UNDER 37 C.F.R. §§ 1.191 & 41.37

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Sir:

Pursuant to 37 C.F.R. §§ 1.191, 41.37(c), 41.37 generally, and MPEP § 1205.01, ¶ 6 (Revision 5), the following is an Appeal Brief in support of the Appeal filed December 21, 2006, appealing the Final Office Action dated August 25, 2006 and the Advisory Action dated November 15, 2006.

Submitted herewith is the filing fee in the amount of \$500.00 for this Appeal Brief in accordance with 37 C.F.R. § 41.20(b)(2). Please charge said fee to Deposit Account No. 04-1298 (E. I. du Pont de Nemours and Co.).

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Application Number: 10/659,169
Filing Date: September 10, 2003
Applicant: Lin Wang
Title: Manufacture of Polyethylenes
Attorney Docket: CL1518 US CNT

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I. REAL PARTY IN INTEREST

The real party in interest is the Assignee of the case, E. I. DuPont de Nemours & Co., a Delaware corporation (*hereinafter*, "DuPont").

II. RELATED APPEALS AND INTERFERENCES

None known to Appellants.

III. STATUS OF THE CLAIMS

Claim 1-25, 29, and 34 are canceled. Claims 26-28, 30-33, and 35-39 remain in the case. Claims 26-28, 30-33, and 35-39 have been rejected under 35 U.S.C. § 103(a). Said rejection is the subject of this appeal. No claims are allowed.

IV. STATUS OF AMENDMENT

There were no amendments after the final rejection, so there are no "pending" amendments.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Generally, the present application describes blends of (co)polyethylenes made in a polymerization reactor, by using at least two different polymerization catalysts. Ethylene, and one or more α -olefins, are fed to and/or formed in the polymerization reactor. Because said two different polymerization catalysts have differing activities with regard to the polymerization of α -olefins, two (co)polyethylenes, differing in comonomer (α -olefin) content, are produced.

The process(es) for making these polymers is (are) generally described at page 6, line 21 to page 7, line 30; page 12, lines 13-19; page 13, line 23 to page 15, line 3; and page 16, lines 5-8 and 15-16 in the original Specification. A general description of the

polymers produced by this process is found at page 6, lines 21-29; and page 17, line 16 to page 18, line 26. Not included in the above listings are more preferred items such as preferred polymerization or oligomerization catalysts.

Claim 26

In the claims under consideration, Claim 26 is the only independent claim. Claim 26 relates to a process for producing a blend of two or more polyethylenes, which comprises contacting ethylene (page 6, lines 21-29), one or more α -olefins of the formula $R^{18}CH=CH_2$ wherein R^{18} is n-alkyl containing an even number of carbon atoms (page 6, line 30 to page 7, line 10), a first active polymerization catalyst to copolymerize ethylene and the separately added α -olefins (page 12, lines 13-19; and page 13, line 23 to page 14, line 22), a second active polymerization, that under the polymerization conditions, has little, or no tendency, to copolymerize ethylene and α -olefins (page 13, lines 14-22; and page 14, line 23 to page 15, line 3). These polymerization catalysts must be Ziegler-Natta and/or metallocene catalysts (page 13, lines 26-31; and page 14, lines 23-25), with a *proviso* that when the first and second active polymerization catalysts are metallocenes, said one or more added olefins of the formula $R^{18}CH=CH_2$ must be a series (two or more) of olefins (page 6, line 31 to page 7, line 1).

As noted in the Application, other process conditions are "normal" for the particular catalysts used in the polymerization (page 16, lines 15-16). These conditions would include conditions such as, whether the process was continuous, batch, or semi-batch; gas phase or liquid phase (suspension or solution) process, whether one or more of the catalysts were supported or not; whether and what catalyst activators would be used; temperature; pressure; etc. Such a condition (gas phase process) is only mentioned specifically only in claim 32, so these conditions are not dwelled upon here.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The ground of rejection to be reviewed on appeal is the rejection of Claims 26-28, 30-33, and 35-39 under 35 U.S.C. § 103(a), as obvious over European Patent Application EP 128046, to Ewen, *et al.* (*hereinafter*, "Ewen").

VII. ARGUMENT

(A) REJECTION UNDER 35 U.S.C. § 103(A)-CLAIMS 26-28, 30-33, & 35-39 OVER EUROPEAN PATENT APPLICATION EP 128046, TO EWEN, ET AL.

Provided below is the Appellants' traversal of the Final Rejection and Advisory Action, and Arguments in support thereof.

The main issue in this rejection is whether the Ewen teaches or suggests that two or more α -olefins be used in its polymerization process. As the Examiner has pointed out, the Ewen reference suggests the use of two metallocene catalysts having different propensities to copolymerize ethylene and an α -olefin. However the Examiner further contends that Ewen teaches using two or more α -olefins. Appellants dispute this contention.

First we deal with whether Ewen actually states that more than one α -olefin be used in the polymerization, as the present claims require, when two metallocene catalysts are used. The page and line number referred to below are to publication EP 0128046A1 to Ewen, *et al.* ("Ewen"), and not the issued patent. Ewen's description of the invention starts at page 3 line 9. Pertinent quotes are as follows (Emphasis added in each case):

- (a) Page 3, lines 10-12:
"The. . . invention provides a process for producing (co)polyolefin reactor blends comprising polyethylene and (co)polyethylene- α -olefins."
- (b) Page 3, lines 15-16:
". . . simultaneously polymerizing ethylene an copolymerizing ethylene with an α -olefin. . ."
- (c) Page 3, lines 26-27:

“...polymerization of reactor blends of polyethylene with **ethylene- α -olefin copolymers**;...”

- (d) Page 4, lines 27-30:
“The...invention is directed towards a catalytic process for the polymerization of ethylene and **one or more α -olefins to polyethylene-copolyethylene- α -olefin** reactor blends.”
- (e) Page 4, line 35 to Page 5, line 1:
“...with **copolyethylene higher α -olefins** having from 3 to about 10 carbon atoms and preferably 4 to 8 carbon atoms.”
- (f) Page 5, lines 1-2:
“Illustrative of the higher **α -olefins** are propylene, butene-1, hexene-1 and octene-1.”
- (g) Page 5, line 3:
“Preferably, **the α -olefin** is propylene or butene-1.”
- (h) Page 5, lines 4-5:
“In the process of the present invention, ethylene, together with the **α -olefins**, is polymerized. ...”
- (i) Page 11, lines 10-11:
“...is known for blend of ethylene and **copolymers** of ethylene and **higher α -olefins**.”
- (j) Page 17, Claim 8:
“...polymerizing ethylene and **at least one α -olefin** simultaneously. ...”

In opinion of the Appellants, at best, these quotes taken together are ambiguous in suggesting whether or not two or more α -olefins are used. For example, points (d) and (j) unambiguously support the use of more than one α -olefin. On the other hand, (b) and (g) clearly suggest that only one α -olefin should be used. The rest of the quotes, whether using singular or plural, seem to use the singular or plural merely to make the text read better. For instance, point (f) above stating that “Illustrative of the higher **α -olefins** are propylene, butene-1, hexene-1 and octene-1;” becomes cumbersome when read as: “Illustrative of the higher **α -olefin** are propylene, butene-1, hexene-1 and octene-1.”

Therefore, Appellants look for other evidence in Ewen to understand what exactly does the disclosure intend convey. At page 8, lines 30-33 Ewen states (in essence) that the sterically larger the monomer (α -olefin), the less it will tend to copolymerize with

ethylene. One skilled in the art would probably take this to mean that various α -olefins would copolymerize at different rates because of their differing sizes, and therefore use of more than one α -olefin would not be desirable, thus teaching away from using more than one α -olefin.

Even more illustrative are the polymer products made in the examples and mentioned as possible products. Although Appellants are aware that the disclosure is not limited to such items, in this instance, they will assist the artisan in interpreting what Ewen is disclosing. As the Examiner has noted, none of the examples illustrates using more than one α -olefin. At page 11, lines 3-4, a list of products which can be produced by Ewen's process are disclosed and they are "HDPE/EPR copolymer, LLDPE/EPR copolymer, HDPE/LLDPE and HDPE/LLDPE/EPR copolymer blends". HDPE is high density polyethylene, normally an ethylene homopolymer, EPR is an acronym for ethylene-propylene rubber, a polymer containing only one α -olefin, propylene. LLDPE is a copolymer of ethylene and an α -olefin. Although in theory more than one α -olefin could be used to make an LLDPE, one skilled in the art would immediately think of LLDPE that contains only one α -olefin, since these are by far more common than those that could contain more than one α -olefin.

Thus, the "extrinsic evidence" within Ewen itself does not support the idea that Ewen discloses or suggests the use of more than one α -olefin in his process. After reading Appellants' invention and then Ewen, it would be easy to interpret Ewen as suggesting the use of more than one α -olefin. However, this is the use of impermissible hindsight. "One of more difficult aspects of resolving questions of nonobviousness is necessity to guard against slipping into use of hindsight."¹ "Thus, in deciding the issue of obviousness, [the court] must look at the prior art presented from a vantage point in time prior to when the invention was made, . . ."² Absent knowledge of the present invention an artisan would not look upon Ewen as suggesting the use of more than one α -olefin in

¹ *In re Carroll*, 601 F.2d 1184, 1186 (CCPA 1979) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1965)).

² *Id.*

his process, because “. . . it is well settled that the entire disclosure of a reference must be considered under 35 USC § 103. . .”³

Appellants also point out that Ewen prefers the use of propylene or butene-1 (page 5, line 3). Even if one were to use both of these favored α -olefins in the polymerization process, one would not meet the limitations of the present claims, which require at least two α -olefins having an even number of carbon atoms present in the polymerization. However, there is no clear exposition in the reference that a series of α -olefins should be used, much less a series of α -olefins wherein the olefins must have an even number of carbon atoms. In other words, Ewen does not suggest that at least two α -olefins having an even number of carbon atoms be present in the polymerization, which is an essential limitation of the rejected claims when two metallocene catalysts are present.

Furthermore, when one looks at Examples 1(a), 1(b), 1(c), 2, and 3 in Ewen for guidance, it is clear that Ewen uses only one α -olefin with ethylene. In fact, Ewen uses only propylene in all its examples. Ewen therefore must be interpreted to mean the use of one α -olefin.

For the above reasons, Ewen does not render the presently rejected claims obvious.

³ *Ex parte Anderson*, 21 U.S.P.Q. 2d 1241 (BPAI 1991) (citing *In re Mills*, 470 F.2d 649, (CCPA 1972)).

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PATENT
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VIII. CONCLUSION

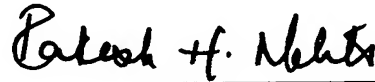
For the reasons set forth above, the Board of Patent Appeals and Interferences is respectfully requested to reverse the final rejection of pending Claims 26-28, 30-33, and 35-39 and indicate allowability of all claims.

Please charge any fee due which is not accounted for to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company).

Respectfully Submitted,

BY:

Date: February 12, 2007



RAKESH H. MEHTA, ESQUIRE
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CLAIMS APPENDIX

26. A process for producing a blend of two or more polyethylenes, comprising the step of contacting:
- (1) ethylene;
 - (2) one or more separately added α -olefins of the formula $R^{18}CH=CH_2$, wherein R^{18} is alkyl, wherein R^{18} has an even number of carbon atoms;
 - (3) a first active polymerization catalyst under conditions to copolymerize ethylene and the separately added α -olefins; and
 - (4) a second active polymerization catalyst under conditions to polymerize ethylene, but has little or no tendency to copolymerize ethylene and α -olefins,
- and provided that said first and said second active polymerization catalysts are selected from the group consisting of Ziegler-Natta catalysts and metallocenes,
- and further provided that when said first active polymerization catalyst and said second active polymerization catalyst are both metallocenes, said one or more separately added olefins is a series of olefins of the formula $R^{18}CH=CH_2$.
27. The process as recited in claim 26 wherein a series of α -olefins of the formula $R^{18}CH=CH_2$ are present.
28. The process as recited in claim 26 wherein the second active polymerization catalyst is chemically different than the first active polymerization catalyst.

30. The process as recited in claim 26 wherein the first polymerization catalyst is a metallocene-type catalyst.
31. The process as recited in claim 26 wherein the first polymerization catalyst and second polymerization catalyst are supported.
32. The process as recited in claim 31 carried out in the gas phase.
33. The process as recited in claim 32 wherein the second active polymerization catalyst is chemically different than the first active polymerization catalyst.
35. The process as recited in claim 26 wherein the first and second polymerization catalysts are both metallocenes.
36. The process as recited in claim 28 wherein the first and second polymerization catalysts are both metallocenes.
37. The process as recited in claim 31 wherein the first and second polymerization catalysts are both metallocenes.
38. The process as recited in claim 33 wherein the first and second polymerization catalysts are both metallocenes.

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39. The process as recited in claim 26 wherein at least one α -olefin wherein R¹⁸ contains an odd number of carbon atoms is also present.

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GROUP ART UNIT 1713

EVIDENCE APPENDIX

None

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GROUP ART UNIT 1713

RELATED PROCEEDINGS APPENDIX

None